

(12) **UK Patent Application** (19) **GB** (11) **2 237 204 A** (13)  
(43) Date of A publication 01.05.1991

(21) Application No 9012221.9

(22) Date of filing 01.06.1990

(30) Priority data

(31) 8916918

(32) 25.07.1989

(33) GB

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(51) INT CL<sup>1</sup>

A61M 5/178, A61J 1/16

(52) UK CL (Edition K)

A5R RCX

(56) Documents cited

US 4657138 A

US 4592745 A

US 4227528 A

(58) Field of search

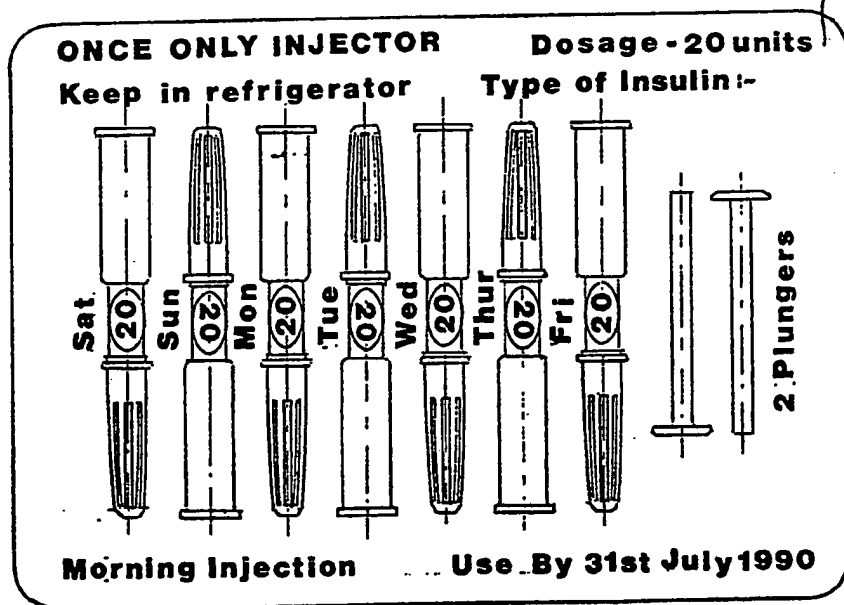
UK CL (Edition K) A5R RCQ RCX

INT CL<sup>1</sup> A61J 1/16, A61M 5/00 5/178

Online databases: WPI

(54) **Pre-determined dose injection unit**

(57) The unit is filled with insulin by the insulin processor in laboratory type conditions to a precise dosage ready for use.  
The unit is compact and requires no separate apparatus or material for use by the patient.  
The unit is packaged in a calendar pack to enable the injections to be monitored.  
The unit is intended for disposal by the patient immediately after use.  
The unit is designed to prevent secondary use.

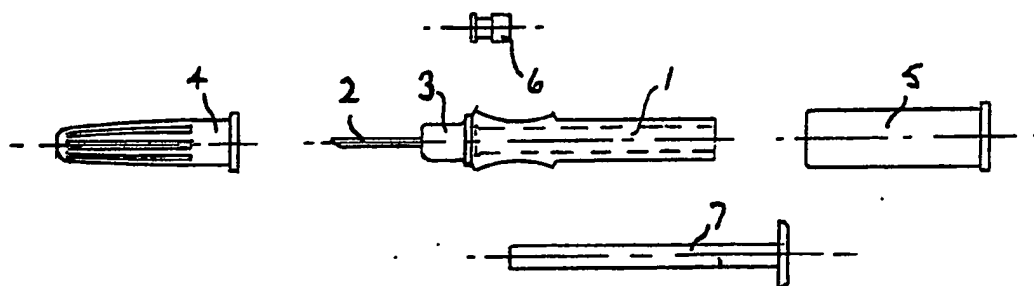


*Fig 3*

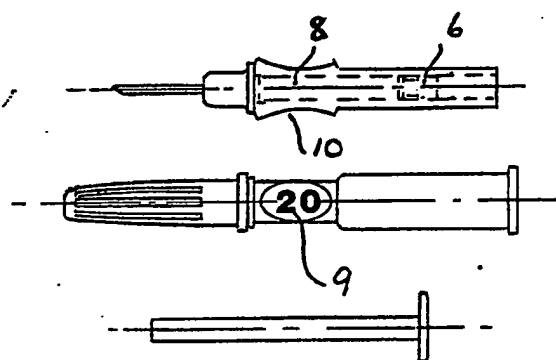
At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rule.

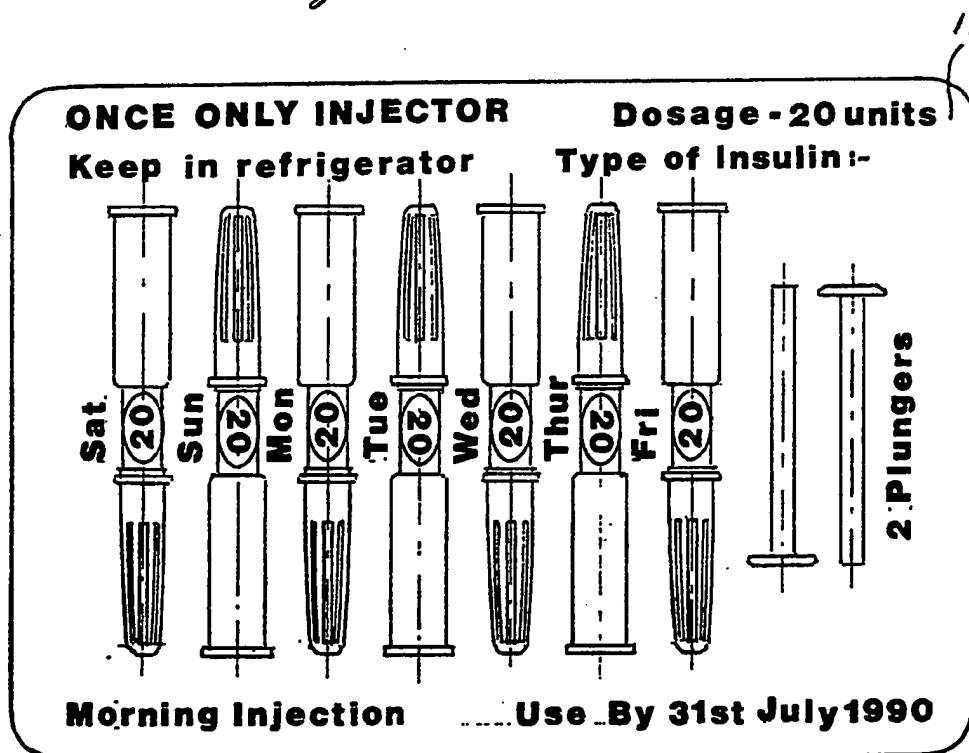
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*Fig 1*



*Fig 2*



*Fig 3*

PRE-DETERMINED DOSE INJECTION UNIT

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DESCRIPTION (1 of 2)

This invention relates to the injection of insulins.

The injection of insulin to combat diabetes mellitus in diabetic patients is usually carried out using (a) a syringe in which the dosage is drawn up by the patient, (b) a sealed vial of insulin where the rubber membrane needs to be cleaned before the syringe needle is inserted, (c) a cleaning medium such as methylated spirit, (d) a quantity of cotton wool and (e) a mechanism to clip off the needle of the syringe to prevent its use after disposal. In addition, some small flat surface is needed to carry out the preparations as above. Injections are recommended to be given approximately thirty minutes before breakfast, and when necessary, thirty minutes before the evening meal.

On occasions when an injection has to be given away from home, difficulties do arise in carrying out the above preparations. In poorly lighted cloak-rooms an incorrect dose of insulin can be drawn up and injected, for instance. Mistakes also arise at home, especially with elderly, poor sighted or confused patients in maintaining the cleanliness, drawing up an accurate dosage or absentmindedly either forgetting or even repeating the injection. The result of these errors can lead to hospital care or visiting by qualified nurses.

The proposed invention provides for a pre-filled injection unit where the size or amount of the dose of insulin is determined by the insulin processor and the injection unit is filled under hygienic conditions. The size of the dose is clearly marked on the unit in figures that can easily be identified. The unit is easily portable and, if away from home when the injection has to be given, obviates the need to carry a separate vial of insulin, methylated spirit, cotton wool or the needle clipper. The unit can easily and safely be disposed of after use and cannot be used again for injections.

The proposed injection units would be packaged in calendar packs which would be used to monitor the day-by-day injections, together with an ultimate use-by date.

PRE-DETERMINED DOSE INJECTION UNIT

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DESCRIPTION (2 of 2)

Describing the invention by reference to the accompanying drawing -  
Drg. No. P A 106 (1 of 1) :-

Fig. 1 This view shows the unit as supplied from the injector manufacturer to the insulin processor, showing 1, the injector body, 2, the needle, 3, the needle hub, 4, the needle cap, 5, the end cap, 6, the piston and 7, the plunger. Note - the needle, needle hub and needle cap are all as used for a standard disposable syringe for single use.

Fig. 2 This view shows the unit as supplied from the insulin processor - the injector body has been filled with a precise amount of 8, insulin in accordance with the size of the dose indicated, the end caps have been assembled and, together with the loose plunger is ready to be passed to the packaging specialist. Also shown in this view is 9, the raised figures for easy identification and 10, the finger grip.

Fig. 3 This view shows the units as supplied from the packaging specialist to hospitals, clinics, chemists and patients. The package acts as a monitor to check whether or not the injection has been carried out and indicates the size of the dosage and type of insulin, morning or evening injections and a use-by date.

The simple operations involved in carrying out the injection are as below :-

- 1 Prepare clothing for injection to be made
- 2 Remove injector and plunger from package
- 3 Tip injector to and fro to mix insulin
- 4 Remove protective caps from injector
- 5 Engage plunger and inject
- 6 Dispose of injector and protective caps

PRE-DETERMINED DOSE INJECTION UNIT

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CLAIMS

- 1 An easily portable, safely disposable injection unit containing a precise dosage of insulin for use by diabetic patients.
- 2 An injection unit that patients can use with confidence, knowing that the unit is hygienic and that the dosage is accurate.
- 3 A package for the units that provides a monitor to check that the relevant injection has been given.